

## Ocular manifestation, complications and aetiological factors in Stevens-Johnson syndrome/toxic epidermal necrolysis

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### Abstract

**Objective:** To describe the ocular manifestations of Stevens-Johnson Syndrome/Toxic Epidermal Necrosis among inpatients at a tertiary care hospital.

**Methods:** The retrospective observational descriptive study was carried out at the Aga Khan University Hospital, Karachi, and comprised data on age, gender, aetiology and ocular findings related to patients diagnosed with Stevens-Johnson Syndrome/Toxic Epidermal Necrosis between January 2000 and December 2011. SPSS 19 was used for statistical analysis.

**Results:** There were 87 patients; 48(55.2%) of them being males. The overall mean age was 33.2±22.2 years, ranging from 1 month to 84 years.

The most common aetiology was idiopathic 20(23%) followed by non-steroidal inflammatory drugs and anti-epileptics 11(12.6%) each. Besides, 84(96.6%) patients had oral mucosal involvement whereas 45(51.7%) had ocular and 27(31.0%) had genital-mucosal involvement. Glassroding was performed in 16(18.4%) patients due to minor conjunctival adhesions.

**Conclusion:** Ocular manifestations of varying severity were frequent, with drugs being the most common aetiology.

**Keywords:** Stevens-Johnson Syndrome, Toxic epidermal necrolysis, Ocular manifestations, Aetiology. (JPMA 65: 62; 2015)

### Introduction

Stevens Johnson syndrome (SJS) was first described in 1922 by Stevens and Johnson, and is an immunological disorder characterised by acute blistering of the skin and involvement of at least any two mucous membranes from among oral, nasal, ocular, vaginal and urethral.<sup>1</sup>

Toxic epidermal necrosis (TEN) is a severe form of SJS and involves more than 30% of body surface area.<sup>2</sup> In general population, SJS and TEN have an annual incidence (new cases per million people) of 1.2 to 7.0 and 0.4 to 1.2, respectively; affecting all ages, genders, all ethnic groups and races.<sup>3,4</sup>

The pathogenesis of SJS remains unclear. Aetiological factors include infection, drugs as allopurinol, antibiotics, anticonvulsants and non-steroidal anti-inflammatory drugs [NSAIDs], and malignancies. However, approximately half of the cases are idiopathic.<sup>5,6</sup> The clinical course is typically prolonged even after drug discontinuation, which remains the mainstay of treatment.<sup>7</sup>

SJS causes visual loss as it can lead to corneal damage, including scarring and vascularisation. In more than half

of the cases, ocular consequences are acute in nature, occurring with or after the involvement of skin.<sup>8</sup>

Ocular manifestations of SJS/TEN remain an understudied research area, especially in South Asian countries, including Pakistan. This is despite the evidence of a genetic predisposition to these conditions among South Asian population partly due to altered drug metabolism.

The current study was planned to enumerate the ocular manifestations of SJS/TEN among inpatients at a tertiary care hospital.

### Patients and Methods

The retrospective observational descriptive study was carried out at the Aga Khan University Hospital, Karachi, and comprised data on age, gender, aetiology and ocular findings related to patients diagnosed with SJS/TEN between January 2000 and December 2011. Patients having history of previous ocular problems were excluded from the study. A structured proforma was used to record data on demographics, type and severity of ocular complications, and aetiology of SJS or TEN. Detailed drug history was also noted to figure out the relative frequency of each aetiological agent.

Data was analysed using SPSS 19. Frequencies and percentages were calculated to describe categorical variables. Mean and standard deviation (SD) were computed for quantitative variables such as age. No

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statistical test of significance was used because of the descriptive nature of study.

## Results

A total of 87 patients with SJS/TEN were hospitalised during the study period and all were included. Among them,

**Table:** Aetiology of SJS and TEN.

Frequency	Frequency	Percent
Unknown	20	23.0
NSAIDS	11	12.6
Anti-epileptics	11	12.6
Fluoroquinolones	8	9.2
Antimalarial	7	8.0
Anti-gout medication	6	6.9
Penicillin	5	5.7
Cephalosporin	5	5.7
Metronidazole	3	3.4
Sulpha-containing drug	2	2.3
Anti-tuberculosis drug	2	2.3
Macrolides	2	2.3
Anthelmintic agents	1	1.1
Clarithromycin	1	1.1
Acetaminophen	1	1.1
Tetracycline	1	1.1
Antifungal	1	1.1

NSAIDS: Non-steroidal inflammatory drugs.

SJS: Stevens-Johnson Syndrome

TEN: Toxic Epidermal Necrosis.

48(55.2%) were males and 39(44.8%) were female. The mean age of the patients was 33.2±22.2 years and their median age was 36 years (range: 1 month to 84 years).

The most common aetiology was idiopathic 20(23%) followed by NSAIDs and anti-epileptics 11(12.6%) each, fluoroquinolones 8(9.2%), anti-malarial drugs 7(8.0%), anti-gout medication 6(6.9%), penicillin and cephalosporins 5(5.7%) each (Table).

Besides, 84(96.6%) patients had oral mucosal involvement whereas 45(51.7%) had ocular and 27(31.0%) had genital-mucosal involvement. Glassroding was performed in 16(18.4%) patients due to minor conjunctival adhesions.

Even after use of lubricants, 2(2.2%) patients developed longstanding signs and symptoms of dryness and conjunctival adhesions, leading to an ulcer formation in 1(1.14%). The ulcer resolved leaving a non-central corneal scar.

## Discussion

The study aimed at reviewing the presenting features, especially ocular complications, of SJS/TEN in a tertiary

care hospital. It found that nearly half the study population had ocular manifestations.<sup>9</sup> Ocular complications may occur acutely and may even result in sight-threatening conditions such as corneal scars/vascularisation. Therefore, it is extremely important that these patients have regular eye assessment.<sup>10</sup>

It is important to mention that the management of ocular complications of SJS has not changed significantly over the past several decades. The management of acute eye manifestations usually starts with frequent lubrication of the eye surface. In our study, glassroding was performed in nearly 1 in 5 patients to treat conjunctival adhesions. Two patients developed long-term eye dryness and conjunctival adhesions which were treated with eye lubricants.

The differences in the severity of ocular complications at presentation are possible in different ethnic and racial groups because of differences in access to care and genetic differences in drug metabolism.<sup>11</sup> Unfortunately, there is paucity of literature on such aspects of SJS/TEN, particularly in South East Asia. Eye involvement often is long-term and sometime sight-threatening.<sup>12</sup> In acute phase, most patients consult a general physician or a dermatologist. Ophthalmologist is consulted only later on. Thus a multi-disciplinary team needs to be involved from the outset to improve both short- and long-term management. Patient education about possible risks is also important.

In the current study, the exact aetiology could not be identified in one-fourth of cases. Most of our cases were drug-related, the common agents being NSAIDs, anti-epileptics, fluoroquinolones, anti-malarials, anti-gout medication, penicillin and cephalosporins. Various studies have shown that drugs are responsible for up to 60% of SJS cases.<sup>11,13</sup>

## Conclusion

Ocular manifestations of varying severity are frequent in SJS/TEN and can lead to long-term complications. Timely management of eye manifestations is important to reduce the risk of long-term complications. Drugs were the most common cause in our patients. Further studies are vital for a better understanding and identification of the possible aetiological factors.

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